METEORCOMM LLC

ITCR Summary Description of Manufacturing Test Report – Preproduction 2 (PP2) Radios

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Revision history

Revision	Date	Summary of Changes
1.0	12/14/2012	New DCN number for FRA.

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1. Introduction

This document summarizes the PP2 manufacturing test reports for the PTC 220MHz radios – Base, Loco and Wayside.

1.1 Scope

This document is limited to describing PP2 radio manufacturing test reports at CalAmp, Oxnard CA. This document describes the types of radio tests required for manufacturing as recorded in the individual radio test reports generated by ATS.

This document does not detail all tests that are performed. The referenced tests are presented only as a single sample of tests performed on each radio produced.

1.2 Acronyms

In this section, define the acronyms you use in your document, including the standard ones you use all the time.

Acronym	Description
ACPR	Adjacent Channel Power Ratio
ATS	Automated Test System for radios
BER	Bit Error Rate
CalAmp	CalAmp Corp.
DUT	Device Under Test
MCC	Meteorcomm LLC
PAR	Peak to Average Ratio
POST	Power On Self-Test
RSSI	Receive Signal Strength Indication
RF	Radio Frequency
RX	Receive
TX	Transmit

1.3 References

[1] Sample Wayside radio ATS test report, DCN 00002629-A

[2] Sample Base 24 radio ATS test report, DCN 00002629-A

[3] Sample Base 48 radio ATS test report, DCN 00002629-A

[4] Sample Loco radio ATS test report, DCN 00002629-A

2. Manufacturing Test Report Format Summary

Each test and value reported fall into the following categories:

- DUT and test information
- Basic circuitry operation and clean-up
- Receive tests
- Transmit tests

The manufacturing test report format is as follows. (See Figure 1.) Although Figure 1 is visually presented as one page, please note that the actual report will be multiple pages (See sample reports [2], [3], [4], and [5]).

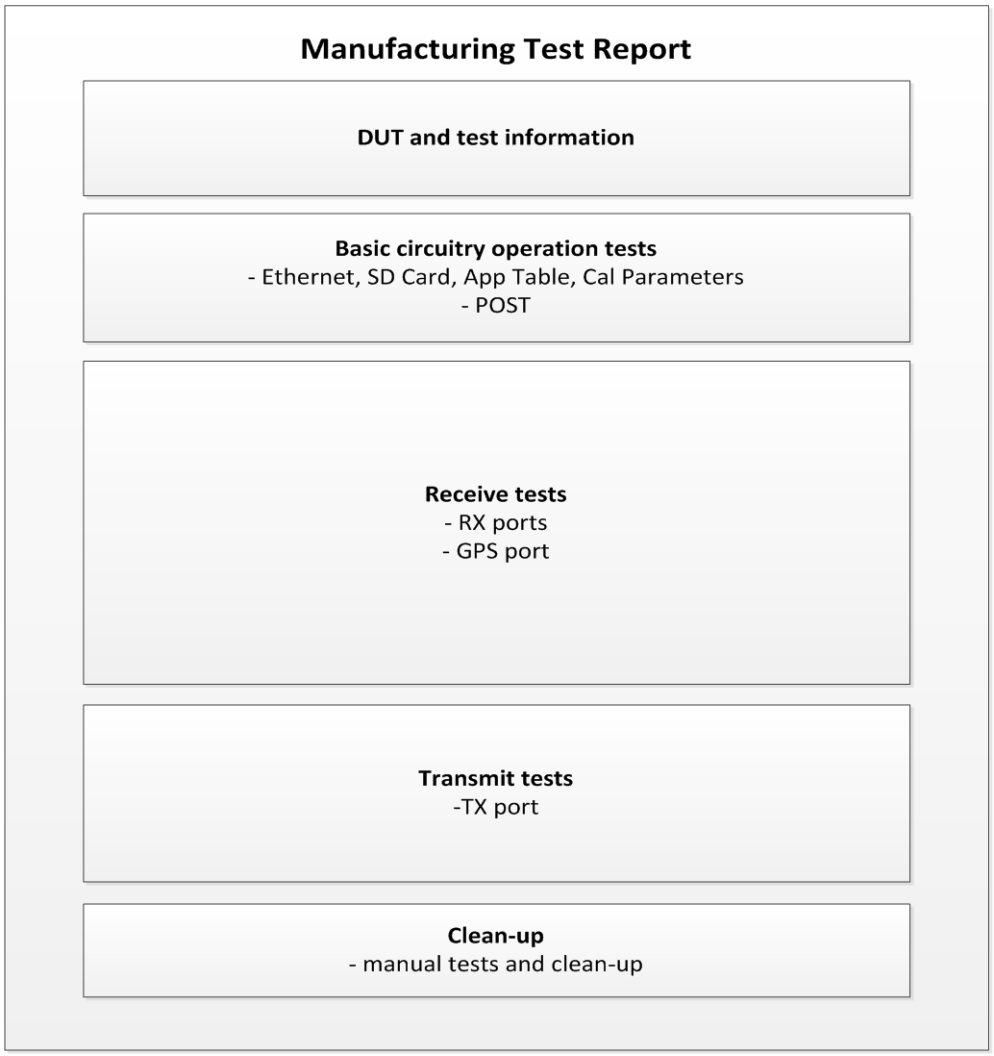

Figure 1 Manufacturing Test Report Format

This format applies to reports generated by all radio types – Base, Loco, Wayside. Specific tests may vary based on the type of radio. For example, the fan operation test only applies to the Base radio.

2.1 DUT and test information

At the beginning of each report, information on the test report is provided. This includes items such as date/time, DUT serial number, test station ID, operator, execution time test sequence file version, overall DUT pass/fail result, and failure chain, if any.

2.2 Basic circuitry operation tests and clean-up

Next in sequence in the report is the basic functionality of the radio. The report includes verifying the software, calibration parameters, SD card operation, Ethernet configuration, POST, temperature sensor, Applications Table.

At the end of the report, there are the last manual tests and clean-up operations. The LEDs and fans (Base radio only) are verified as that requires opening of the RF enclosure. Once that is complete, ATS will verify that the calibration parameters were not changed since the beginning of the test.

2.3 Receive tests

The third group of tests listed in the test report are the receive tests.

The first set of receive tests is the calibration of RSSI.

Once RSSI has been calibrated and recorded, ATS will performs the receive tests. The receive tests will look at the current drain and BER while varying the frequency (3x), modulation (half- and full-rate), input power. Each of those test instances will be performed on each radio port. Each radio has a different number of radio ports as listed below:

- Wayside – 1 TX/RX
- Loco – 1 TX/RX, 1 RX
- Base – 1 TX/RX, 2 RX

Lastly, ATS will check the Wayside and Base radio GPS module. The Loco radio does not have a GPS module.

2.4 Transmit tests

The fourth group of tests in the report are the transmit tests.

Each radio only has one TX port. As with receive testing, ATS will check multiple parameters under multiple variables. The test will perform vary supply voltage (nominal, low and high), transmit frequency (3x), modulation (half- and full-rate), power level, and ACPR. Each test is recorded in the test report. ATS will include the following test measurements: current drain, PAR, output power, frequency accuracy, EVM.